
Name:..... ID No.

Study the attached code **link.cpp**.

After studying the code, add the following members:

(You have to chose 3 exercises to solve as homework, the rest exercises will be bonus)

1. A member function to the class **IntList** called **count()**; which return the number of nodes in a list. Your function declaration should be: `int IntList::count()`
call this function in **DisplayList** function to show the number of nodes each time **DisplayList** is executed.
2. Same as the previous task but now use data member rather than member function. Add a data member to the class **Intlist** called **counter**, which counts how many nodes in each list. Note that: You need to increment the counter each time you add a node, and decrement it each time you delete a node. To test your counter you should print it in **DisplayList** member function. Show the counter value each time the function **DisplayList** is executed (After task #1 and task #2, the number of nodes should be displayed twice each time **Displayist** is executed, first using the function: **count()**, second using the data member: **counter**, and they should be equal)
3. A Mamebr function to the class **IntList** called **concatenate**, which takes two parameters of type **List** and attach the second list to the first one.
For example: if the first parameter list is 2 4 6
 and the second parameter list is 3 5
 then the resulted list will be 2 4 6 3 5
The function declaration should be as follows:
`void IntList::concatenate(IntList list1, IntList list2)`
4. A Member function to the class **IntList** called **AddBeforeNode**, which adds a node before a specific node. Its declaration should be as follows:
`void IntList::AddBeforeNode (int newVal, int pushedVal)`
where **newVal** is the new inserted value, and the **pushedVal** is the value which exists in the linked list already and needs to be pushed and preceded by the new node that contains the inserted value. In other words, the new node should be inserted before the node contains **pushedVal**.
5. Member function to the class **IntList** called **AddAtPosition**, Which adds a node at specific position. Its decalration should be as follows:
`void IntList::AddAtPosition(int newVal, int position)`
the function insert a new node with the **newVal** at the position specified,for example, calling **AddAtPosition(2, 3)** means: add new node contains 2 as its info in the 3rd position of the list.

Don't forget to modify *instructions* function to enable user to use the new capabilities added: add at specific position and add before a specific node.